EXHIBIT 4

```
Page 1
1
               UNITED STATES DISTRICT COURT
              EASTERN DISTRICT OF WASHINGTON
2
    CITY OF SPOKANE, a
    municipal corporation
    located in the County of
    Spokane, State of
    Washington,
                                    Case No.
                                     2:15-cv-00201-SMJ
6
               Plaintiff,
7
           -vs-
8
    MONSANTO COMPANY, et al.,
9
               Defendants.
10
11
12
                SHOOK HARDY & BACON
             2001 MARKET STREET - SUITE 3000
13
            PHILADELPHIA, PENNSYLVANIA 19103
                     DECEMBER 18, 2019
14
                        10:14 A.M.
15
16
                VIDEOTAPED DEPOSITION OF
17
                 LISA A. RODENBURG, PH.D.
18
19
20
21
22
23
     REPORTED BY:
24
     DEBRA SAPIO LYONS, RDR, CRR, CRC, CCR, CLR, CPE
25
      JOB NO. 173395
```

```
Page 2
1
2
3
4
5
                   December 18, 2019
6
            Videotaped deposition of Lisa A.
7
    Rodenburg, Ph.D., held at the offices of Shook
8
    Hardy & Bacon L.L.P., 2001 Market Street -
    Suite 3000, Philadelphia, Pennsylvania
                                               19103,
10
    before Debra Sapio Lyons, a Registered Diplomat
11
    Reporter, a Certified Realtime Reporter, a
12
    Certified Realtime Captioner, a Certified
13
    LiveNote Reporter, an Approved Reporter of the
14
    United States District Court for the Eastern
15
    District of Pennsylvania, a Certified Court
16
    Reporter of the State of New Jersey, a Notary
17
    Public of the States of New Jersey, New York and
18
    the Commonwealth of Pennsylvania.
19
20
2.1
22
23
24
25
```

		Page 3
1	APPEARANCES:	
2	BARON & BUDD	
	BY: BRETT LAND, ESQUIRE	
3	3102 Oak Lawn Avenue	
	Dallas, Texas 75219	
4		
5	Attorneys for Plaintiff	
6		
	SHOOK HARDY & BACON	
7	BY: THOMAS GOUTMAN, ESQUIRE	
	DAVID HAASE, ESQUIRE	
8	2001 Market Street	
	Philadelphia, Pennsylvania 19103	
9		
10		
11	AND	
	BY: CHRISTOPHER SORENSON, ESQUIRE	
12	2555 Grand Boulevard	
	Kansas City, Missouri 64108	
13		
14	Attorneys for Defendant Monsanto Company	
15		
	ALSO PRESENT:	
16		
	CRYSTAL STRAWBRIDGE, VIDEOGRAPHER	
17	TSG REPORTING, INC.	
18		
19		
20		
21		
22		
23		
24		
25		

			Page 4
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2	WITNESS	PAGE	
3	Lisa A. Rodenburg, Ph.D.		
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5	BY MR. LAND	293	
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8	Exhibit Rodenburg-1, deposition transcript dated February 7, 2018 of Lisa	10	
	A. Rodenburg, Ph.D.		
9	A. Rodenburg, III.b.		
	Exhibit Rodenburg-2, errata sheet for	12	
10	deposition dated February 7, 2018 of Dr.		
	Lisa Rodenburg,		
11			
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12	transcript dated June 14, 2019 of Lisa A.		
	Rodenburg, Ph.D.		
13			
	Exhibit Rodenburg-4, two-page document	15	
14	containing Jurat signed by Lisa A.		
1.5	Rodenburg and errata sheets		
15		1.0	
16	Exhibit Rodenburg-5, Defendants' Second	19	
16	Amended Notice of Videotaped Deposition		
17	of Lisa Rodenburg and Subpoena To Testify At A Deposition in A Civil Action		
18	Exhibit Rodenburg-6, letter dated August	24	
10	11, 2017 addressed to John Fiske	24	
19	II, ZUI, AUGICABEG CO DUIIII FIBRE		
	Exhibit Rodenburg-7, Expert Report of	28	
20	Lisa A. Rodenburg, Ph.D., City of Spokane	20	- 1
	V. Monsanto Company, et al., Submitted by		
21	Lisa A. Rodenburg, Ph.D. Octobert [sic]		
	11, 2019		
22			
	Exhibit Rodenburg-8, multipage document	37	
23	entitled PCB Emissions From Paint		
	Colorants, Jacob C. Jahnke and Keri C.		
24	Hornbuckle		
25			

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3	Exhibit Rodenburg-9, multipage document	43	
	entitled Pollution Prevention and		
4	Management Strategies for Polychlorinated		
	Biphenyls in the New York/New Jersey		
5	Harbor		
6	Exhibit Rodenburg-10, multipage document	51	
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7	in thermal treatment of plant equipment		
8	Exhibit Rodenburg-11, multipage document	59	
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9	PVC on the formation of PCDDs, PCDFs and		
	·		
10	dioxin-like PCBs in pyrolysis products of		
11	automobile residues	60	
1 1	Exhibit Rodenburg-12, multipage document	62	
1.0	entitled Formation of PCDDs, PCDFs, and		
12	Coplanar PCBs from Incineration of		
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13	Chlorides		
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15	dioxin-like PCBs in dedicated full scale		
	waste incinerators		
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17	entitled Special Guides Green Issue April		
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18			
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19	PCB Webinar September 25, 2017, PCBs: An		
	Update		
20			
	Exhibit Rodenburg-16, excerpt of Mitchell	86	
21	D. Erickson's book entitled Analytical		
	Chemistry of PCBs, Second Edition		
22	<u> </u>		
	Exhibit Rodenburg-17, multipage document	114	
23	entitled 2018 Annual Toxics Management	_	
	Report, Spokane County Regional Water		
24	Reclamation Facility, NPDES Permit		
	WA-0093317		
25			

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2	NUMBER DESCRIPTION	PAGE
3	Exhibit Rodenburg-18, multipage Excel	115
	file entitled concentration PCB-001,	
4		
5	Exhibit Rodenburg-19, two-page document entitled Determination of Polychlorinated Biphenyls Using Multiple Regression With	139
6	Outlier Detection and Elimination	
7	Exhibit Rodenburg-20, multipage document entitled Source Apportionment of	165
8	Polychlorinated Biphenyls in the Tidal	
	Delaware River	
9		
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10	entitled Source Apportionment of PCBs in	
	the Spokane River: Blank study and	
11	preliminary results,	
12	Exhibit Rodenburg-22, multipage	190
	spreadsheet of raw data Line 1 labeled	
13	BB(1809040-03) First Run	
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1.5	spreadsheet of raw data Line 1 labeled	
15	1308073-01 First Run	0.1.0
16	Exhibit Rodenburg-24, multipage	213
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20		227
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21	1211029-03 First Run	
22	Exhibit Rodenberg-27, multipage	244
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23	Company Papermakers since 1911.	
24	Exhibit Rodenburg-28, multipage document	250
	entitled Recycling and Deinking of	
25	Recovered Paper	
1	-	

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2	NUMBER DESCRIPTION	PAGE
3	Exhibit Rodenburg-29, one-page document	252
	entitled Inland Empire Paper Company, PCB	
4	Fact Sheet	
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6		
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7	entitled Inadvertent PCBs in Pigments:	
	Market Innovation for a Circular Economy	
8	Final Report,	
9	Exhibit Rodenburg-32, multipage document,	265
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10	Product Testing Results	
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	Line 1 entitled City Of Spokane PCB	
12	Product Testing Results	
13	Exhibit Rodenburg-34, multipage document	269
	entitled PCBs in Municipal Products	
14	Revised	
15	Exhibit Rodenburg-35, multipage document	270
	entitled Sample Receipt Form/Chemical	
16	Analysis Form	
17	Exhibit Rodenburg-36, three-page	283
1.0	spreadsheet	
18		
1.0	Exhibit Rodenburg-37, one-page document	288
19	entitled Errata and Supplement to	
2.0	Fingerprinting of PCB congener patterns	
20	in samples from the Spokane, WA Area,	
0.1	Lisa A. Rodenburg, December 17, 2019	
21	DECLINATE HODE DECENTED A	D 7 6 5
2.2	REQUEST FOR PRODUCTION	PAGE
22	De anne art	0.0
23	Request	23
[∠] 3	Request	109
24	Request	282
25	Request	285
∠ ⊃		

- Lisa A. Rodenburg, Ph.D.
- THE VIDEOGRAPHER: This is the start
- of Tape Labeled Number 1 of the videotaped
- 4 deposition of Lisa Rodenburg in the matter
- of City of Spokane, et al. v. Monsanto
- 6 Company, et al. in the United States
- District Court, Eastern District of
- Washington, Case Number 15-CV-00201-SMH.
- ⁹ This deposition is being held at
- 10 2001 Market Street, Philadelphia,
- 11 Pennsylvania on December 18th, 2019 at
- approximately 10:15 a.m.
- 13 My name is Crystal Strawbridge from
- 14 TSG Reporting, Inc. and I'm the legal video
- specialist. The court reporter is Debra
- 16 Lyons in association with TSG Reporting.
- Will counsel, please, introduce
- yourselves.
- MR. GOUTMAN: We'll waive
- introduction of counsel.
- THE VIDEOGRAPHER: Okay. Will the
- court reporter, please, swear in the
- witness?
- LISA A. RODENBURG, PH.D., having
- been first duly sworn, was examined and

```
Page 36
1
                 Lisa A. Rodenburg, Ph.D.
 2
                 You said 2009.
            Α.
 3
                         209, yeah.
                                     There are not
            Ο.
                 Okay.
    that many congeners, even I know that.
 5
                 And you cite 11 and 209 because
6
    they're frequently found as byproduct
7
    congeners in pigments; correct?
8
                 That is one reason, yes.
            A .
9
            0.
                 Okay. What's -- what are the
10
    other reasons?
11
                 209 -- I'm trying to think. So
            Α.
12
    209 has been found in inorganic pigments and
13
    organic pigments. I can't think of anything
14
    else at the point -- at this moment. So,
15
    yeah, they've been found in pigments.
16
                 And we spent a lot of time at the
            0.
17
     last deposition going through Hu and
18
    Hornbuckle and their paper identifying
19
    numerous other congeners found in pigments;
20
     correct?
21
            Α.
                 Correct.
22
                 And we don't have to do that
            Ο.
23
    again, do we?
24
            Α.
                 I don't think so.
25
                 There's another paper that I found
            Q.
```

Page 43 1 Lisa A. Rodenburg, Ph.D. 2 in a sample. BY MR. GOUTMAN: 4 Ο. So your answer is yes? 5 Α. Yes. 6 0. In addition, of course, there are 7 other manufacturing processes that produce 8 byproduct PCBs. You're aware of that; right? 9 Α. Yes. 10 And the EPA in 1983, when they 0. 11 passed regulations on this, listed some 200 12 manufacturing processes that could potentially 13 create byproduct PCBs. You're aware of that? 14 A . Yes. 15 And that list was collected in a Ο. 16 paper that Mr. Coghlan, one of Plaintiff's 17 experts, was brought to our attention, which 18 I'm about to show you. 19 Α. Okay. 20 MR. GOUTMAN: We'll mark this as 2.1 Exhibit 9. 22 (Exhibit Rodenburg-9, multipage 23 document entitled Pollution Prevention and 24 Management Strategies for Polychlorinated 25 Biphenyls in the New York/New Jersey

Page 51 1 Lisa A. Rodenburg, Ph.D. 2 River watershed; correct? That is correct. Α. Would you agree that combustion 0. reactions can create PCBs? 6 A . Yes. 7 MR. GOUTMAN: Why don't we go to 8 Ishikawa. Just give me all of those. 9 (Exhibit Rodenburg-10, multipage 10 document entitled PCB decomposition and 11 formation in thermal treatment of plant 12 equipment, is marked for identification.) 13 BY MR. GOUTMAN: 14 We've marked as Exhibit 10 a paper Ο. 15 by Ishikawa, et al. called, "PCB decomposition 16 and formation in thermal treatment of plant 17 equipment." 18 Are you familiar with this paper? 19 It's not ringing a bell, no. Α. 20 Okay. What this papers shows, and Ο. 21 you can take a second and read it, I'm just 22 going to direct your attention to a few 23 passages, but they basically -- excuse me for 24 coughing -- they basically ran combustion 25 experiments, just looking at the top of the

```
Page 71
 1
                 Lisa A. Rodenburg, Ph.D.
 2
           An Update, is marked for identification.)
     BY MR. GOUTMAN:
 4
                 And you've seen this document
 5
     before; correct?
 6
            Α.
                 Yes.
 7
                 We've shown you, I think, at both
            Ο.
 8
     of your earlier depositions, at least one of
 9
     them.
10
            Α.
                 Yes.
11
                 And this is a transcription of a
            0.
12
    webinar you gave on September 25, 2007, "PCBs:
13
    An Update"; correct?
14
            A.
                 2017.
15
            0.
                 Did I -- what did I say?
16
            A .
                 2007.
17
                 Wow. It's a bad day here. Sorry.
            Q.
18
    I had a cold and my brain is not functioning
19
    as clearly as it usually does. I'm usually
20
    sharp as a tack, believe me.
21
            A .
                 I know.
22
                 Okay. In this webinar you said
            Q.
23
     some things that I'd like to show you. If you
24
    turn to Page 53 -- 52 actually --
25
                 52.
            A.
```

```
Page 72
 1
                 Lisa A. Rodenburg, Ph.D.
 2
                 -- if you can, read from Line 16
            Q.
3
    down to Page 53, Line 10. Read it aloud for
4
    the record.
5
                 MR. LAND: And slowly.
6
                 THE WITNESS: Was I slow enough last
7
          time?
8
                 "And so this is a problem for the
9
          City of Spokane, or the County of Spokane,
10
          because they can" --
11
    BY MR. GOUTMAN:
12
            0.
                 I'm sorry. Let me interrupt.
13
    Start from Line 13.
14
            A .
                 13.
15
            0.
                 The entire paragraph.
16
                 Oh, sure.
            A .
17
                 "And the one PCB congener that is
18
    now dominant in the effluent is PCB-11, which
19
    is the one that comes from pigments. And so
20
    this is a problem for the City of Spokane, or
21
    the County of Spokane, because they can go
22
    after the Aroclor-type sources. They're one
23
    of the cities suing Monsanto, for example.
24
    They can try to remove all transformers and
25
    capacitors. You know, they can try to do a
```

Page 73 1 Lisa A. Rodenburg, Ph.D. 2 lot of things to remove the Aroclor-type PCBs 3 from their system, but that's not their main 4 problem. Their main problem is PCB-11 for 5 pigments; and what are they going to do about 6 that. That's quite difficult, because people 7 are always going to use color-printed, you 8 know, paper; and they're always going to wear 9 printed clothing. And they're always going to 10 have these PCB -- these pigments in their 11 system. There's not much that Spokane County 12 can do about their worst PCB problem." 13 So when you gave this webinar --0. 14 by the way, what was the purpose of this 15 webinar and what was the audience? 16 It was a continuing education A . 17 project run by Rutgers. 18 Ο. Okay. So you were there as an 19 educator? 20 Α. Yes. 21 Ο. And when you lecture as an 22 educator, you attempt to give accurate 23 information; correct? 24 Α. Yes. 25 At -- as of September 25, 2017, Q.

- Lisa A. Rodenburg, Ph.D.
- 2 Kentucky, Minnesota, or Florida, it's all
- 3 mixed together?
- A. Well, I'm assuming your samples
- 5 are all tagged with latitude and longitude.
- 6 Q. Yeah, I understand that, but in
- ⁷ the PMF analysis in this hypothetical, you're
- 8 mixing them all together, you're including
- ⁹ them in the same analysis, right, and you're
- identifying factors; correct?
- 11 A. Yes.
- Q. So isn't it true that geographic
- heterogeneity might limit the extent to which
- 14 a PMF analysis can give you useful
- 15 information?
- MR. LAND: Objection, misleading,
- incomplete hypothetical.
- THE WITNESS: As long as your
- samples are tagged with latitude and
- longitude, you can back out the spacial
- information, so I don't think it limits
- you.
- 23 BY MR. GOUTMAN:
- Q. Okay. Going back, you put -- you
- put this -- load this data into your computer

```
Page 128
1
                 Lisa A. Rodenburg, Ph.D.
 2
    and you ask your computer model to generate
    factors, what's called factors; correct?
3
4
            A.
                 Correct.
5
            0.
                 And you compared those factors to
6
    certain Aroclors; correct?
7
            A.
                 Correct.
8
            0.
                 And in your report you identify
9
    specifically your methodology, and you -- if I
10
    can find it -- I believe compared it to 1016,
11
    Aroclor 1242, 1248, 1254, and 1260; correct?
12
            A .
                Correct.
13
                 So that was your methodology. And
            0.
14
    you did not compare the factors to byproduct
15
    profiles; correct?
16
                 When I found factors that were not
            A.
17
    similar to any of the Aroclors, I did compare
18
    them with what I knew about inadvertent PCBs.
19
                 That wasn't my question and I
            0.
20
    think you know it wasn't my question.
21
                 You did not design this by -- by
22
    comparing by way of PMF analysis any
23
    non-Aroclor profiles, you used only Aroclor
24
    profiles; correct?
25
                 MR. LAND: Objection, misleading,
```

```
Page 129
1
                 Lisa A. Rodenburg, Ph.D.
          incomplete hypothetical.
                THE WITNESS: The PMF analysis just
          spits out the fingerprints. It has nothing
5
          to do with whether things are Aroclors or
6
          not. And then I took the fingerprints and
7
          compared them with Aroclors.
8
    BY MR. GOUTMAN:
9
                So the answer is, yes, you did
           0.
10
    not -- you did not take what the computer spat
11
    out, the factors, right, and compare them to
12
    byproduct profiles?
13
                 MR. LAND: Objection, misleading.
14
                 THE WITNESS: I did. When -- when
15
          the factors did not look like Aroclors, I
16
          then went and compared them with what I
17
          knew about inadvertent byproduct PCB
18
          fact -- fingerprints.
19
    BY MR. GOUTMAN:
20
           0.
                Which byproduct fingerpint --
21
    prints did you identify and use and in what
22
    publications did you take them from?
23
                There's a paper by Nakano where he
           A .
24
    has fingerprints for PCBs in silicone
25
    products. I used that.
```

```
Page 130
1
                 Lisa A. Rodenburg, Ph.D.
 2
                 What was the R2 value for that?
            0.
            A.
                 I don't remember.
4
                 So why didn't you submit that
            0.
5
    analysis in your report?
6
                 I did it visually. I didn't do it
            A .
7
    in terms of actual numbers.
8
            Ο.
                 Well, this is my question.
 9
                 In terms of actual numbers --
10
            Α.
                 Okay.
11
            Ο.
                 -- so you can generate an R2
12
    value, the quantitative result that scientists
13
    can look at instead of just sort of trying to
14
    peer subjectively in your head, okay, did you
15
    calculate any R2 values for any of the factors
16
    based upon byproduct profiles found in the
17
    literature?
18
            A.
                 No.
19
                 MR. LAND: Objection, misleading.
20
                 THE WITNESS: Sorry.
21
    BY MR. GOUTMAN:
22
                 And that is something you could
            Q.
23
    have done; correct?
24
                 MR. LAND: Objection, incomplete
25
           hypothetical.
```

```
Page 131
1
                 Lisa A. Rodenburg, Ph.D.
 2
                 THE WITNESS: In some cases, yes.
3
    BY MR. GOUTMAN:
4
                 What would have prevented you from
            0.
5
    doing that?
6
                 The byproduct PCB signatures vary
            A .
7
    quite a bit from what I've seen in the
8
    literature, so it would be difficult to know
9
    which ones to use. There are many published
10
    ones.
11
                 Why not use all of them? What
            0.
12
    would prevent you from doing that?
13
                 That would be possible.
            Α.
14
                 And, in fact, there are byproduct
            0.
15
    profiles for numerous products that you are
16
    not even aware of, for example, the products
17
    that were listed in Page 100 of Exhibit 9. Do
18
    you recall that?
19
                 MR. LAND: Objection, compound,
20
           vague.
21
    BY MR. GOUTMAN:
22
            Ο.
                 Correct?
23
                 MR. LAND: What are you asking
24
           there?
25
                                What am I asking?
                 MR. GOUTMAN:
```

Page 132 1 Lisa A. Rodenburg, Ph.D. 2 asking the question I asked. BY MR. GOUTMAN: In fact, there are by -- there are 5 byproduct profiles for numerous products that 6 are -- that you are not aware of that are, for 7 example, listed in products in Exhibit 9 that 8 we discussed in some detail; correct? 9 MR. LAND: Objection, vaque, 10 incomplete hypothetical. 11 THE WITNESS: Presuming that the 12 products listed in that table really do 13 have PCBs in them, then, yes, there may be 14 other fingerprints that I'm not aware of. 15 BY MR. GOUTMAN: 16 And for purposes of preparing your 17 report, you did not go out and research any of 18 these products that are listed in Exhibit 9 to 19 determine what, if any, information there is 20 on byproduct PCB profiles in these products; 21 correct? 22 Only for the pigments in the -- in 23 the silicones. 24 And you certainly didn't compare 0. 25 them to any byproduct profiles from the

Page 133 1 Lisa A. Rodenburg, Ph.D. 2 incineration literature which we've already 3 discussed you were not familiar with; correct? 4 I am familiar with some of the 5 incineration literature. I have some 6 knowledge of what the fingerprints look like 7 out of incinerators, and so I had -- I had 8 that in mind when I was looking at the 9 fingerprints, but I did not numerically 10 compare them, no. 11 The only thing you numerically 0. 12 compared the factors to were Aroclors; 13 correct? 14 A . Correct. 15 And then after comparing them, you Ο. 16 used three criteria according to Page 14 of 17 your report; correct? 18 I'm sorry. What was the question Α. 19 again? 20 You used three criteria, did you Ο. 21 not, for determining whether the PMF 22 identified a non-Aroclor source; correct? 23 Α. Yes. 24 And the first one is that it

should not resemble any Aroclors; right?

25

```
Page 138
1
                 Lisa A. Rodenburg, Ph.D.
2
                 I'm at Page 133, and we'll do this
            Ο.
    the hard way. Okay?
4
                 Question Page -- Line 3:
5
                 "Let me ask it this way -- in this
6
    way -- let me ask it this way. I couldn't
7
    look in a handbook, textbook, or peer-reviewed
    article which will tell me that a sample with
    an R2 value of .5 is either weather -- a
10
    weathered Aroclor, something that never was an
11
    Aroclor, or something that always was an
12
    Aroclor?"
13
                 And your answer was what --
14
            Α.
                 Correct.
15
                 -- and that is true today;
            Ο.
16
    correct?
17
            Α.
                 Correct.
18
                 And I asked you:
            Q.
19
                 "If I were to tell you that in my
20
    opinion the upper cutoff limit of .8 should be
21
    .9, how could you disprove that?"
22
                 And what was your answer under
23
    oath?
24
                 "I couldn't disprove it."
            A.
25
            Q.
                 And that is true today; correct?
```

```
Page 139
1
                 Lisa A. Rodenburg, Ph.D.
            A.
                 Correct.
            0.
                 And then I asked:
4
                 "If I were to say the lower cutoff
    should be -- instead of .4, it should be .5,
6
    .6, .7, how would you scientifically disprove
7
    that?"
8
                 And your answer was?
9
                 "I can't disprove it."
            Α.
10
            Q.
                 And that answer is true today?
11
            A .
                 Yes.
12
                 And am I correct that these
            0.
13
    cutoffs that you used here have never been
14
    subjected to a peer review in a peer-reviewed
15
    journal?
16
                Correct.
            A.
17
                 (Counsel confer.)
18
                 MR. GOUTMAN:
                               I'd like to show you a
19
           Exhibit 19, which is a paper that you cite
20
           in your report.
2.1
                 (Exhibit Rodenburg-19, two-page
22
           document entitled Determination of
23
           Polychlorinated Biphenyls Using Multiple
24
           Regression With Outlier Detection and
           Elimination, is marked for identification.)
25
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Page 140 1 Lisa A. Rodenburg, Ph.D. 2 MR. GOUTMAN: For the record, this is a paper by Burkhard, B-U-R-K-H-A-R-D, 4 and Weininger, W-E-I-N-I-N-G-E-R, titled 5 "Determination of Polychlorinated Biphenyls 6 Using Multiple Regression With Outlier 7 Detection and Elimination." 8 BY MR. GOUTMAN: 9 And you're familiar with this 0. 10 article; right? 11 Α. Yes. 12 And just if you go to the second 0. 13 page, they're talking about COMSTAR; is that 14 correct? 15 Α. Yes. 16 And that's a PMF program similar Ο. 17 to the one that you use? 18 No, COMSTAR is different. Α. 19 It is a -- it is a method of PMF Ο. 20 analysis; correct? 21 No, as I understand it, COMSTAR is 22 more of a MLR, similar to MLR. 23 It -- I understand. Okay. Ο. 24 enough. 25 But what it sets forth here, and

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1
                 Lisa A. Rodenburg, Ph.D.
 2
    this is, again, a paper that you cited, it
3
    sets forth R2 values that the authors deem
4
    acceptable. And it says, and I'm quoting in
5
    the second page right here (indicating) --
6
            A .
                Uh-huh.
7
                -- "From our experiences with
            0.
8
    COMSTAR, acceptable COMSTAR solutions are
9
    obtained when the following conditions occur:
10
    First, R2 for the analysis is greater than .9."
11
                 Is that what it says?
12
            A.
                 That's what it says.
13
            0.
                 And right above that it says, the
14
    fourth table, Table 1, a turtle sample -- by
15
    the way, this is about analysis of PCBs;
16
    right?
17
           Α.
                Yes.
18
                "The fourth sample, a turtle
            0.
19
    sample, illustrates the behavior of COMSTAR
20
    with severely imperfect input data. For this
21
    sample, COMSTAR analysis failed, i.e., COMSTAR
22
    was unable to find a subset of PCB peaks which
23
    forms a self-consistent PCB population. This
24
    failure is shown by the smaller R2 value, 725";
25
    correct?
```

- Lisa A. Rodenburg, Ph.D.
- A. That is what it says.
- Q. Now, I don't know if I asked you
- 4 this, but these cutoffs that you include in
- 5 this report, do they appear -- I think I asked
- 6 you whether you've ever published in the
- 7 peer-reviewed literature.
- 8 Have you ever seen it anywhere
- 9 else in a study in a peer-reviewed journal?
- 10 A. No.
- 11 Q. The second criterion that you
- used, it says -- this is on Page 14 of your
- report, the second full paragraph.
- A. Hold on. I lost my report. Is
- it -- yeah, here we go. Okay. What page?
- Q. Page 14.
- 17 A. Okay.
- Q. Second full paragraph, the second
- criteria is that -- I'm just quoting from your
- 20 report -- is that, "When the agreement between
- 21 Aroclor and the factor is less than .4, the
- differences between the Aroclor and the factor
- cannot be explained by any known weathering
- phenomenon."
- Is that what it says?

Case 2:15-cv-00201-SMJ ECF No. 487-4 filed 02/11/20 PageID.41142 Page 28 of 37 Page 172 1 Lisa A. Rodenburg, Ph.D. 2 But it -- the reader of this 0. report would not be able to tell what those byproduct congener concentrations are other than they're found in pigments other than 11 6 and 209; correct? 7 Α. Correct. And also you did not discuss Ο. congeners found in any of the other 200 or so 10 products that might potentially contain 11 byproduct PCBs that we discussed in Exhibit 8; 12 correct? 13 I did discuss silicone. Α. 14 Other than silicone? 0. 15 No, not other than silicone. Α. 16 And you did not discuss the 0. 17 likeness or unlike -- or, excuse me, the 18 presence and concentration of PCBs --19 byproduct PCBs that are known to be generated 20 by incineration? 21 Correct. 22 So of the universe of byproduct 0. 23 congeners -- excuse me -- of products that may

contain byproduct PCBs, you narrowed that

universe essentially to pigments in silicone;

24

25

Page 173 1 Lisa A. Rodenburg, Ph.D. 2 right? 3 I would say that those are the two A. 4 that I specifically considered. 5 0. And -- and, in fact, with respect 6 to pigments, you narrowed the universe from 7 the dozens of congeners to two, 11 and 209; 8 correct? 9 I'm sorry. Can you repeat that? A . 10 0. With respect to just pigments, you 11 narrowed the universe of congeners that are --12 number in the dozen, byproduct congeners that 13 are in the dozens down to two, PCB-11 and 2 --14 209; correct? 15 Those are the two that I **A** . 16 specifically reported. 17 Why is blank correction important? 18 Α. When you analyze samples for PCBs, 19 you frequently find PCBs in the blanks, and so 20 you need to correct that to account for the 21 fact that PCBs are present in the blanks, that 22 some of the PCBs that you measure in the 23 sample might be there because of blank 24 contamination in the lab or in the field. 25 And you've referred to it in some Q.

```
Page 187
1
                 Lisa A. Rodenburg, Ph.D.
 2
           mischaracterizes prior testimony, but you
           can answer.
 4
                               Again, I don't
                 THE WITNESS:
 5
           remember the specifics.
6
    BY MR. GOUTMAN:
7
                 I would like to now turn to the
            0.
8
    MLR that you performed on data, leaving aside
9
    the MLR testing that you just told us about an
10
    hour or so ago that we weren't aware of, but
11
    the MLR data that -- the MLR data that you
12
    actually discuss in your report. Okay?
13
                 And once again, your report
14
    gives -- you're -- you're comparing the data,
15
    am I not correct, to known Aroclor patterns;
16
    correct?
17
            Α.
                 Correct.
18
                 And that would be 1016, 1242,
            0.
19
    1248, 1254, and 1260; right?
20
            A.
                 And as I mentioned in my errata,
21
    I -- I did a little bit with 1262 and 1268.
22
            Q.
                 We're going to get to that.
23
                 At least in this report you did
24
    not do 1262 and 1268; correct?
25
            A.
                 Correct.
```

Page 188 1 Lisa A. Rodenburg, Ph.D. 2 And am I correct that in your MLR 0. 3 you did not compare the data to any byproduct 4 patterns quantitatively; correct? 5 **A**. Correct. 6 Am I correct then that, as a 0. 7 result, all you were finding out is the extent 8 of the resemblance to Aroclor profiles and not 9 the resemblance to byproduct profiles? 10 Correct? 11 A. Correct. 12 And, again, you used the R2 0. 13 cutoffs that we discussed in some detail 14 earlier; correct? 15 Well, I reported every R2 and then Α. 16 I, in my interpretation, I did follow those 17 quideline cutoffs, yes. 18 Ο. Okay. And once again, when you 19 looked at whether there was a resemblance to 20 byproduct PCBs, you limited your discussion to 21 two of the congeners found in pigments, 22 correct, PCB-11 and 209? 23 MR. LAND: Take your time to look 24 through your report if you need to. 25 (Reviewing document.) THE WITNESS:

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1
                 Lisa A. Rodenburg, Ph.D.
 2
    BY MR. GOUTMAN:
 3
                 Okay. We've marked as Exhibit 37,
            0.
    your Errata and Supplement; is that correct?
4
5
            A.
                 Correct.
6
                 And you state that -- well, you
            0.
7
    rehearse what you said in -- on Page 17 of
8
    your expert opinion, fingerprinting -- quote,
9
    Fingerprinting of PCB congener patterns in
10
    samples from Spokane, Washington area, and you
11
    noted that Stormwater 4 and Stormwater 5
12
    somewhat resembled Aroclors, et cetera; right?
13
            A.
                 Correct.
14
                 And then you say that you actually
            Q.
15
    meant Stormwater 3 when you refer to
16
    Stormwater 4 and you meant Stormwater 4 when
17
    you refer to Stormwater 5; right?
18
            A .
                Correct.
19
                 And you said, [As read]: "More
            0.
20
    importantly, since I wrote this testimony in
21
    the summer of 2019, I've become aware of a
22
    number of papers that discuss the uses of 1262
23
    and 1268."
24
                 Do you recall that?
25
            A.
                 Yes.
```

Page 290 1 Lisa A. Rodenburg, Ph.D. 2 Am I correct that you were aware **Q**. 3 of 1262 and 1268 as commercial Aroclors well 4 before the summer of 2019; correct? 5 **A**. Correct. 6 And you were aware of -- and the 0. 7 papers that you cite, indeed, date as far back 8 as 1997; right? 9 Α. Correct. 10 0. If you can get out Exhibit 15. 11 have an extra copy if that would be easier. 12 Page 33, and to reorient you or to 13 clarify the record, this is the web --14 transcription of a webinar you gave on 15 September 25, 2017; correct? 16 Α. Yes. 17 And on Page 33, beginning on 18 Line 5, could you read in the record what you 19 said during this --20 Α. "So here's" --21 -- educational seminar? Ο. 22 Α. Sorry. 23 "So here's an example of what the 24 different Aroclors look like, period. 25 are the four big ones. Remember, I mentioned

- Lisa A. Rodenburg, Ph.D.
- that Aroclor 1016 looks a lot like Aroclor
- ³ 1242. So they're very similar. So I've
- 4 lumped those together. And then there was
- ⁵ Aroclor 1248, 1254, and 1260. So these five
- 6 Aroclors made up 99 percent of all the U.S.
- 7 production."
- Q. Can you continue to read?
- 9 A. "There are a couple of others.
- 10 There's Aroclor 1268 and 1260 -- 1272. But
- those are very, very minor, rarely used; not
- the kind of thing that you're typically going
- to run into when you're doing any kind of site
- assessment or thinking about PCBs."
- Q. Okay. So what you did with the
- analysis is that you then introduced for the
- first time in any of your analyses that you've
- done in this case, two additional Aroclors,
- 19 Aroclor 1262 and Aroclor 1268; is that
- 20 correct?
- A. Correct.
- Q. And you got a higher R2 than you
- had before you had introduced those two
- 24 Aroclors; correct?
- A. Correct.

Page 292 1 Lisa A. Rodenburg, Ph.D. 2 Are you aware of any facility in 0. 3 the City of Spokane that used commercial 4 Aroclor 1262 or 1268? 5 **A**. No. 6 0. Are you -- oh, you've -- you did 7 say in this educational webinar in 2017 that 8 the other Aroclors that you had previously 9 included in your analysis comprised 99 percent 10 of all U.S. production; correct? 11 Α. Yes. 12 Ο. And that the Aroclors -- the other 13 Aroclors were very minor, rarely used; 14 correct? 15 Α. Correct. 16 And, again, you have no 17 information as to whether 1262 and 1268 were 18 ever used in the Spokane Valley watershed; 19 correct? 20 Α. Correct. 21 MR. GOUTMAN: That's all I have. 22 Thank you. 23 MR. LAND: All right. I've got a 24 quick redirect. 25 I object. MR. GOUTMAN:

Page 295 1 Lisa A. Rodenburg, Ph.D. 2 CERTIFICATE 3 COMMONWEALTH OF PENNSYLVANIA 4) ss: 5 COUNTY OF PHILADELPHIA 6 I, Debra Sapio Lyons, a Registered Diplomat Reporter, a Certified Realtime Reporter, a Certified Realtime Captioner, an Approved 7 Reporter of the United States District Court for the Eastern District of Pennsylvania, a Certified Court Reporter for the State of New Jersey; and Notary Public within and for the States of New Jersey, New York and the Commonwealth of 10 Pennsylvania do hereby certify: 11 That Lisa A. Rodenburg, Ph.D., the witness whose deposition is hereinbefore set 12 forth, was duly sworn by me and that such deposition is a true record of the testimony given by such witness, to the best of my ability 13 and thereafter reduced to typewriting under my 14 direction. 15 I further certify that I am not related to any of the parties to this action by blood or 16 marriage and that I am in no way interested in the outcome of the matter. 17 In witness whereof, I have hereunto set 18 my hand this 23rd day of December, 2019. 19 Debia Japa Lyons 20 21 DEBRA SAPIO LYONS CRR, RDR, CRC, CCR, CPE 22 23 2.4 2.5

Page 296 1 Lisa A. Rodenburg, Ph.D. 2 * * *ERRATA SHEET* * * 3 NAME OF CASE: City of Spokane, a municipal corporation located in the County of Spokane, State of Washington vs. 5 Monsanto Company, et al. NAME OF WITNESS: Lisa A. Rodenburg, Ph.D. 7 Reason codes: 8 1. To clarify the record. 2. To conform to the facts. 9 3. To correct transcription errors. 10 Line Reason Page From to 11 Line Reason Page 12 to From 13 Line Page Reason From to 14 Line Page Reason 15 From to 16 Line Page Reason From to 17 Page Line Reason 18 From to 19 Page Line Reason From to 20 Page Line Reason 21 From to 22 Line Page Reason From to 23 Subscribed and sworn to before me 24 this _____ , 2019. 25